



PATENT

Publication of:	§	
Lawrence C. Lei	§	
	§	Group Art Unit: Unknown
Pub. No.: 10/792,323	§	
	§	
Publication No.: Unknown	§	
	§	Examiner: Unknown
March 3, 2004	§	
	§	
Apparatus and Method for	§	
Vaporizing Solid	§	
Precursors for CVD or	§	
Atomic Layer	§	

CERTIFICATE OF MAILING
37 CFR 1.8

I hereby certify that this correspondence is being deposited on
June 8, 2004 with the United States Postal Service as First
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6/8/04 Kevin R. Zink
Date Signature

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

The Applicants, and the Attorney who signs below on the basis of the information supplied by the inventor and the information in his file, submit herewith patents, publications, or other information of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

While the information submitted in this Supplemental Information Disclosure Statement may be material pursuant to 37 CFR § 1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is prior art for this invention unless specifically designated as such.

In accordance with 37 CFR § 1.97, this Supplemental Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other possibly material information as defined under 37 CFR § 1.56(a) exists.

The patents and/or publications submitted herewith are set forth on the attached Form PTO-1449.

If the sum of \$180.00 is due under 37 CFR § 1.17(p) pursuant to § 1.97, the Commissioner is hereby authorized to charge this fee, and any other fee necessary to make this submission timely, to the Deposit Account No. 20-0782/AMAT/5191.C1/KMT.

Respectfully submitted,



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Attorney for Applicant(s)



<p>Substitute for form 1449A/PTO</p> <p>SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT</p> <p>(Use as many sheets as necessary)</p>				Application Number	10/792,323
				Filing Date	March 3, 2004
				First Named Inventor	Lawrence C. Lei
				Group Art Unit	Unknown
				Examiner Name	Unknown
				Attorney Docket Number	AMAT/5191.C1/ISM/CORE/MCVD/PJS
Sheet	1	of	11	Submission Date	June 8, 2004

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A1	US-20040015300 A1	01/22/2004	GANGULI, ET AL.	
	A2	US-20040014320 A1	01/22/2004	CHEN, ET AL.	
	A3	US-20040013577 A1	01/22/2004	GANGULI, ET AL.	
	A4	US-20040011504 A1	01/22/2004	KU, ET AL.	
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	B1	EP 1 167 569 A1	06/05/2001	IPS LIMITED		
	B2	GB 2 355 727 A	05/02/2001	SAMSUNG ELECTRONICS CO. LTD.		
	B3	JP 01-175225	07/11/1989	FUJITSU LTD		
	B4	JP 04-291916	09/23/1992	KOKUSAI ELECTRIC CO LTD		
	B5	JP 05-047666	02/26/1993	FUJITSU LTD		

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Substitute for form 1449A/PTO

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet

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of

11

Application Number

10/792,323

Filing Date

March 3, 2004

First Named Inventor

Lawrence C. Lei

Group Art Unit

Unknown

Examiner Name

Unknown

Attorney Docket Number

AMAT/5191.C1/ISM/CORE/MCVD/PJS

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	A19	US-20030121469 A1	07/03/2003	LINDFORS, ET AL.	
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	B6	JP 05-206036	08/13/1993	RIKAGAKU KENKYUSHO		
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	B9	JP 06-224138 (Abstract Only)	05/31/1994	TEXAS INSTRUMENTS INC (US)		
	B10	JP 06-317520	11/15/1994	HITACHI METALS LTD		

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Substitute for form 1449A/PTO SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Application Number	10/792,323
				Filing Date	March 3, 2004
				First Named Inventor	Lawrence C. Lei
				Group Art Unit	Unknown
				Examiner Name	Unknown
				Attorney Docket Number	AMAT/5191.C1/ISM/CORE/MCVD/PJS
Sheet	3	of	11	Submission Date	June 8, 2004

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		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	B11	JP 2000122725	04/28/2000	CKD CORP; TOSHIBA CORP		
	B12	JP 2000212752	11/12/2002	SAMSUNG ELECTRONICS CO LTD		
	B13	JP 2000319772 (Abstract Only)	03/28/2000	P K LTD		
	B14	JP 2001020075 (Abstract Only)	11/15/2000	ASM MICROCHMISTRY OY		
	B15	JP 2001111000	12/26/2002			

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				Attorney Docket Number	AMAT/5191.C1/ISM/CORE/MCVD/PJS
Sheet	4	of	11	Submission Date	June 8, 2004

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		Number-Kind Code ² (if known)			
	A55	US-20020092471 A1	07/18/2002	KANG, ET AL.	
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		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	B16	JP 2001172767 A	06/26/2001	ASM MICROCHEMISTRY OY (US)		
	B17	JP 58-097917 (Abstract Only)	06/10/1983	MATSUSHITA DENKI SANGYO KK		
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	B19	WO 00/54320	09/14/2000	GENUS, INC.		
	B20	WO 00/79575 A1	12/28/2000	GENITECH, INC.		

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	B23	WO 01/17692 A1	03/15/2001	ASM AMERICA, INC.		
	B24	WO 01/27346 A1	04/19/2001	ASM MICROCHEMISTRY OY		
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	A91	US-6578287 B2	06/17/2003	ASWAD	
	A92	US-6572705 B1	06/03/2003	SUNTOLA, ET AL.	
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	A99	US-6475910	11/05/2002	SNEH	
	A100	US-6475276	11/05/2002	ELERS, ET AL.	
	A101	US-6468924	10/22/2002	LEE, ET AL.	
	A102	US-6451695	09/17/2002	SNEH	
	A103	US-6451119	09/17/2002	SNEH, ET AL.	
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	A105	US-6416577	07/09/2002	SUNTOLOA, ET AL.	
	A106	US-6399491	06/04/2002	JEON, ET AL.	
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Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	B26	WO 01/29280 A1	04/26/2001	ASM AMERICA, INC.		
	B27	WO 01/29891 A1	04/26/2001	ASM AMERICA, INC.		
	B28	WO 01/29893 A1	04/26/2001	ASM AMERICA, INC.		
	B29	WO 01/36702 A1	05/25/2001	GENITECH CO., LTD.		
	B30	WO 01/66832 A2	09/13/2001	ASM AMERICA, INC.		

Examiner

Date Considered

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Substitute for form 1449A/PTO SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Application Number	10/792,323
				Filing Date	March 3, 2004
				First Named Inventor	Lawrence C. Lei
				Group Art Unit	Unknown
				Examiner Name	Unknown
				Attorney Docket Number	AMAT/5191.C1/ISM/CORE/MCVD/PJS
Sheet	7	of	11	Submission Date	June 8, 2004

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A109	US-6372598	04/16/2002	KANG, ET AL.	
	A110	US-6358829	03/19/2002	YOON, ET AL.	
	A111	US-6348376	02/19/2002	LIM, ET AL.	
	A112	US-6342277	01/29/2002	SHERMAN	
	A113	US-6306216 B1	10/23/2001	KIM, ET AL.	
	A114	US-6305314 B1	10/23/2001	SNEH, ET AL.	
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	A118	US-6231672 B1	05/15/2001	CHOI, ET AL.	
	A119	US-6224681 B1	05/01/2001	SIVARAMAKRISHNAN, ET AL.	
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	A124	US-6183563 B1	02/06/2001	CHOI, ET AL.	
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		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	B31	WO 02/08485 A2	01/31/2002	ASM INTERNATIONAL N.V.		
	B32	WO 02/08488 A1	01/31/2002	ASM MICROCHEMISTRY OY		
	B33	WO 02/43115 A2	05/30/2002	ASM AMERICA, INC.		
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	B35	WO 02/45871 A1	06/13/2002	ANGSTRON SYSTEMS, INC.		

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Date Considered

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				Filing Date	March 3, 2004
				First Named Inventor	Lawrence C. Lei
				Group Art Unit	Unknown
				Examiner Name	Unknown
				Attorney Docket Number	AMAT/5191.C1/ISM/CORE/MCVD/PJS
Sheet	8	of	11	Submission Date	June 8, 2004

U.S. PATENT DOCUMENTS

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		Number-Kind Code ² (if known)			
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	A128	US-6144060	11/07/2000	PARK, ET AL.	
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	A130	US-6139700	10/31/2000	KANG, ET AL.	
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	A135	US-6072939	06/06/2000	ATWELL	
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	A137	US-6015917	01/18/2000	BHANDARI, ET AL.	
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		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	B36	WO 96/17107	06/06/1996	MIKROKEMIA OY		
	B37	WO 99/01595	01/14/1999	NESTE OY		
	B38	WO 99/29924	06/17/1999	NESTE OYJ		
	B39	WO 99/65064	12/16/1999	A.S.M. INTERNATIONAL N.V.		

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				Group Art Unit	Unknown
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Sheet	9	of	11	Submission Date	June 8, 2004

U.S. PATENT DOCUMENTS

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		Number-Kind Code ² (if known)			
	A146	US-5835677	11/10/1998	LI, ET AL.	
	A147	US-5820678	10/13/1998	HUBERT, ET AL.	
	A148	US-5807792	09/15/1998	ILG, ET AL.	
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	A151	US-5730802	03/24/1998	ISHIZUMI, ET AL.	
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	A166	US-5377429	01/03/1995	SANDHU, ET AL.	
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	A172	US-5261959	11/16/1993	GASWORTH	
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		Number-Kind Code ² (if known)			
	A174	US-5098741	03/24/1992	NOLET, ET AL.	
	A175	US-4993357	02/19/1991	SCHOLZ	
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	A177	US-4911101	03/27/1990	BAL.LINGALL L III, ET AL.	
	A178	US-4834831	05/30/1989	NISHIZAWA, ET AL.	
	A179	US-4783343	11/08/1988	SATO	
	A180	US-4717596	01/05/1988	BARBEE, ET AL.	
	A181	US-4413022	11/01/1983	SUNTOLA, ET AL.	
	A182	US-4389973	06/28/1983	SUNTOLA, ET AL.	
	A183	US-4369031	01/18/1983	GOLDMAN, ET AL.	
	A184	US-4276243	06/30/1981	PARTUS	

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		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	B46					
	B47					
	B48					
	B49					
	B50					

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			Filing Date	March 3, 2004	
			First Named Inventor	Lawrence C. Lei	
			Group Art Unit	Unknown	
			Examiner Name	Unknown	
			Attorney Docket Number	AMAT/5191.C1/ISM/CORE/MCVD/PJS	
Sheet	11	of	11	Submission Date	June 8, 2004

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
	C1	Kukli, <i>et al.</i> , "Tailoring the Dielectric Properties of HfO ₂ -Ta ₂ O ₅ Nanolaminates," Applied Physics Letters, Vol. 68, No. 26, June 24, 1996; p. 3737-9	
	C2	Kukli, <i>et al.</i> "Atomic Layer Epitaxy Growth of Tantalum Oxide Thin Films from Ta(OC ₂ H ₅) ₅ and H ₂ O," Journal of the Electrochemical Society, Vol. 142, No. 5, May 1995; p. 1670-5	
	C3	Kukli, <i>et al.</i> , "In situ Study of Atomic Layer Epitaxy Growth of Tantalum Oxide Thin Films From Ta(OC ₂ H ₅) ₅ and H ₂ O," Applied Surface Science, Vol. 112, March 1997, p. 236-42	
	C4	Kukli, <i>et al.</i> , "Properties of Ta ₂ O ₅ -Based Dielectric Nanolaminates Deposited by Atomic Layer Epitaxy," Journal of the Electrochemical Society, Vol. 144, No. 1, Jan. 1997; p. 300-6	
	C5	Kukli, <i>et al.</i> , "Properties of {Nb _{1-x} Ta _x } ₂ O ₅ Solid Solutions and {Nb _{1-x} Ta _x } ₂ O ₅ -ZrO ₂ Nanolaminates Grown by Atomic Layer Epitaxy," 1997; p. 785-93.	
	C6	Ritala, M., <i>et al.</i> , "Chemical Vapor Deposition," January 1999, p. 6-9	
	C7	Rossnagel, <i>et al.</i> "Plasma-enhanced Atomic Layer Deposition of Ta and Ti for Interconnect Diffusion Barriers," J. Vac. Sci. Technol. B., Vol. 18, No. 4 (July 2000); p2016-20	
	C8	Niinisto, <i>et al.</i> "Synthesis of Oxide Thin Films and Overlayers by Atomic Layer Epitaxy for Advanced Applications," Materials Science and Engineering B41 (1996) 23-29	
	C9	Eisenbraun, <i>et al.</i> "Atomic Layer Deposition (ALD) of Tantalum-based materials for zero thickness copper barrier applications," Proceedings of the IEEE 2001 International Interconnect Technology Conference (Cat. No. 01EX461) 2001	

Examiner

Date Considered

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